

Israeli, American share Wolf Prize in Mathematics

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Jan. 15, 2007

Leading Israeli and American mathematicians will share the \$100,000 Wolf Foundation for Mathematics in May, to be presented at the Knesset by the president of Israel. In addition, the Wolf Prize in Physics, also worth \$100,000, will be divided between leading experts from Germany and France.

Considered Israel's Nobel Prizes, the Wolf Prizes - five of which are awarded every year, were established by the late German-born inventor, diplomat and philanthropist, Dr. Ricardo Wolf.

Education Minister Yuli Tamir, who heads the foundation council, announced the names on Monday.

Prof. Harry Furstenberg of the Hebrew University of Jerusalem will receive half of the mathematics prize "for his profound contributions to ergodic theory, probability, topological dynamics, analysis on symmetric spaces and homogenous flows".

The other half will go to Prof. Stephen Smale of the University of California at Berkeley "for ground-breaking contributions that have played a fundamental role in shaping differential topology, dynamical systems, mathematical economics, and other subjects in mathematics," the international jury said.

Born in Germany in 1935, Furstenberg received his doctorate from Princeton University and since 1965 has been at Hebrew University; he has already received the Israel Prize.

Smale, who was born in the US in 1930, received his Ph.D. from the University of Michigan and joined UC in 1964. He also was a professor at the City University of Hong Kong for six years. His proof in the early 60's of the Poincar Conjecture for dimensions bigger or equal to five is one of the great mathematical achievements of the 20th century.

Smale has reshaped the world's perception of dynamical systems, the jury said.

The physics prize will be shared by Prof. Albert Fert, of the Unit Mixte de Physique, France and Prof. Peter Gruenberg of the Juelich Research Center, Germany, "for their independent discovery of the giant magnetoresistance phenomenon, thereby launching a new field of research and applications known as spintronics, which utilizes the electron spin to store and transport information."

They both had enormous influence on computer storage and made possible the development of powerful magnetic hard disk drives.

The discovery of the giant magnetoresistance phenomenon in 1988, by groups led by Fert and Gruenberg was highly unexpected.

"This discovery has led to major progress in both basic research and in applications, shifting the focus from the transport of charge (electrical current), to that of the electron spin.

"In the resulting new field of spintronics one utilizes the electron spin to transport and store information. In the technological arena, the GMR has completely revolutionized the magnetic recording industry: the very high sensitivity of GMR-based recording heads has allowed a reduction in the bit size, and hence, an enormous increase in the storage capacity and reading speed

of magnetic hard-disk drives.

"Now, some eighteen years after its discovery, all computer hard-disks are equipped with read heads based on the GMR effect," stated the jury.

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